

TINKER AIR FORCE BASE ASBESTOS ABATEMENT SPECIFICATIONS

Revised 04-23-02

Supersedes All Previous Editions

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PART A

GENERAL

The requirements for asbestos abatement are stated herein. The drawings or statement of work associated with this project outline the work area which contains asbestos and the work to be accomplished. In case of conflict between the drawings and the specifications, the specifications shall govern. The following regulations, their appendices, memorandums, attachments and other appurtenant documents which form a part of these regulations shall apply in their entirety.

A.1 Title 29 Code of Federal Regulations (CFR), Section 1926.1101 including all appendices and memorandums, Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, latest edition.

A.2 Title 40 CFR Part 61, Subparts A and M, National Emission Standards for Hazardous Air Pollutants, U.S. Environmental Protection Agency (EPA), latest edition.

A.3 Title 29 CFR, Section 1910.134, Respiratory Protection (OSHA), latest edition.

A.4 Title 40 CFR, Part 355.40, Emergency Planning and Notification, latest edition.

A.5 Title 49 CFR, Part 172, Hazardous Material Tables and Hazardous Materials Communications Regulations, latest edition.

A.6 The Asbestos Contractor shall have in his possession, at the job site and in view, one copy of each of the following: OSHA Reg 1926.1101, EPA 40 CFR Part 61, subparts A and M, and Tinker AFB Asbestos Specification.

A.7 Where a conflict exists between the requirements of this specification and any of the above mentioned regulations, the most stringent shall be applicable.

A.8 All Asbestos Contractors are encouraged to make a prebid site visit, to ensure familiarization with site conditions and the extent of the work requirements.

A.9 Health Warnings: Asbestos Contractors are warned that unprotected exposure to asbestos fibers has been determined to significantly increase risk of incurring four diseases; lung cancer, gastrointestinal cancer, mesothelioma, and asbestosis. Care must be taken to avoid releasing or causing to be released, asbestos fibers into the atmosphere. The Government assumes no liability for damages, personal injuries, illness, disabilities or death to the Asbestos Contractor, Asbestos Contractor employees, and other persons subject to the Asbestos Contractor's control or to any other person including members of the general public, arising from, or incident to the purchase, use, disposition, subsequent operations performed on, contact with or exposure to the asbestos, provided such is caused or contributed to in any manner by the Asbestos Contractor. Heat Stress: The contractor should also be aware that due to the nature of asbestos work, the wearing of respirators, impermeable clothing, material to be

abated (steam lines, boilers, etc.), and containment could all add to heat stress.

A.10 Property Damage: The Asbestos Contractor shall be responsible for all damages caused by or during the abatement. All damaged areas shall be restored to their original condition subject to approval by the Contracting Officer. Any repair or replacement shall be done at no cost to the Government.

A.11 Quality Assurance: The Asbestos Contractor shall ensure all employees are knowledgeable of and comply with the procedures listed in this specification. Work shall not begin each day until a monitor from CE is on site. An exception letter shall be sent to the Contracting Officer when the Asbestos Contractor, whether the Asbestos Contractor is the prime contractor or a subcontractor, is in non-compliance with specifications and/or regulations. This letter shall serve as a basis for action directed towards the Asbestos Contractor, or towards the prime contractor and/or the Asbestos Contractor in cases where the prime contractor is not the Asbestos Contractor, which may range from a warning, removal from the project, or contract termination and bond forfeiture depending upon the severity of the non-compliance and/or the degree of actual or potential damage or harm to Government personnel or property.

A.12 Glovebag Removal: Glovebags shall not be used on surfaces whose temperature exceeds 150 F, shall not be larger than 60 inches X 60 inches and shall not be used more than once or moved after use. Two employees per glovebag and all employees monitored.

A.13 H.E.P.A. Filters/shower filters: All filters shall be new at the beginning of the project.

A.14 Negative Exposure Assessments: N.E.A. will not be implemented at Tinker AFB.

A.15 All Asbestos removal shall be supervised by a Competent Person and shall have daily air monitoring.

A.16 Air Monitoring: The asbestos contractor shall use an independent laboratory for air monitoring and analysis support.

A.17 Site Security: The contractor shall be required to provide security at all Negative Pressure Enclosures after abatement has begun and until clean air has been established. This employee(s) shall maintain the negative pressure enclosure, prevent unauthorized entry, watch for fires within the negative pressure enclosure, and guard contractors material/equipment.

A.18 Fire Protection: The work area shall have dry-charge ammonium fire extinguishers with a Underwriters Laboratories, Inc. rating of at least 10A:B:C, with a valid inspection tag for every 1500 sq. ft. of area for Negative Pressure Enclosures and at least one extinguisher for every glovebag removal area.

A.19 Hazardous Material: Contractors are warned that to bring hazardous material on to Tinker AFB is a violation of RCRA regulations.

PART B

DEFINITIONS

The following is a listing of terms and definitions in this specification.

B.1 Class I Asbestos Work: Work activities involving removal of TSI, surfacing ACM, and PACM.

B.2 Class II Asbestos Work: Work activities involving the removal of ACM which is not thermal system insulation or surfacing material. Asbestos wallboard, floor tile, roofing, siding, shingles, construction mastics, etc.

B.3 Class III Asbestos Work: Means repair and maintenance operations, where "ACM", including thermal systems insulation and surfacing material is likely disturbed.

B.4 Class IV Asbestos Work: Means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.

B.5 Abatement: Procedures to control fiber release from asbestos containing materials. This includes removal, encapsulation and enclosure.

B.6 Air Monitoring: The process of measuring the fiber concentration of a specific volume of air over a specified period of time.

B.7 Airlock: An enclosure consisting of two polyethylene curtained doorways (3 sheets of plastic per doorway) at least 3 feet apart.

B.8 Amended Water: A mixture of at least one ounce of 50 percent polyoxyethylene ester and 50 percent polyoxyethylene ether in five gallons of water or an equal approved by EM.

B.9 Asbestos: A group of naturally occurring minerals that separate into fibers. There are six asbestos minerals used commercially: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite and any of these minerals that has been chemically treated and/or altered.

B.10 Asbestos Containing Material (ACM): Any material containing more than 1 percent Asbestos.

B.11 Asbestos Contractor: A private entity certified in asbestos abatement.

B.12 Asbestos Fiber: A particulate form of asbestos 5 micrometers or longer with a length to diameter ratio of at least 3:1.

B.13 Authorized Visitor: Any representative of a regulatory or other agency having jurisdiction over the project or anyone authorized by EM and required by work duties to be present in the regulated area.

B.14 Clean Room: An uncontaminated area or room which is part of the worker decontamination enclosure with provisions for storage of workers' street clothes and protective equipment.

B.15 Competent Person: One who is capable of identifying existing and predictable hazards in the surroundings or working conditions and has authorization to take prompt corrective measures to eliminate the hazards. The Competent person must be an employee of the Asbestos Contractor and shall be named as that person in the project preabatement submittals. The Competent person shall meet the criteria of the EPA'S Model Accreditation Plan for Supervisors 40 CFR Part 763 and duties required by Subpart C of 29 CFR 1926.20 through 1926.32.

B.16 Decontamination Enclosure System: A series of connected rooms and airlocks used for the decontamination of workers and of materials and equipment (i.e., air lock, clean room, air lock, shower, air lock, dirty or equipment room, air lock, work area).

B.17 Demolition: The wrecking or taking out of any load supporting structural member and related asbestos containing materials.

B.18 Employee: Any person working for the Asbestos Contractor who physically engages in the abatement of asbestos or performs a task on the job site.

B.19 Encapsulant (Sealant): A material applied to asbestos containing materials to control the release of asbestos fibers by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components (penetrating encapsulant).

B.20 Encapsulate: The application of a sealant to asbestos containing materials to control the release of asbestos fibers.

B.21 Enclosure: The complete enclosing of asbestos containing material behind airtight, impermeable, permanent barriers.

B.22 Equipment Room: A contaminated room which is part of the worker decontamination enclosure system used for storage of contaminated clothing and equipment.

B.23 Friable Asbestos: Any material or combination of materials containing more than 1% asbestos that hand pressure can crumble, pulverize, or reduce to powder when dry.

B.24 General Contractor: Shall deem to exercise general supervisory authority over the work even though the general contractor is not qualified to serve as the "competent person" as defined in 29 CFR 1926.1101 paragraph (b). The general contractor shall have the overall responsibility that his subcontractor(s) are in compliance with this standard and all other regulations covering asbestos abatement.

B.25 Glovebag: An asbestos labeled bag constructed of 6 mil or greater transparent plastic, two inward projecting long-sleeve rubber gloves, one inward projecting waterwand sleeve and an internal tool pouch.

B.26 HEPA Filter: A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of particles (asbestos fibers) greater than 0.3 micrometers in diameter.

B.27 HEPA Vacuum Equipment: Vacuuming equipment with a HEPA filter system.

B.28 Load-Out Area: An area designed for controlled transfer of asbestos waste and equipment. This area can be adjacent to the equipment room or work area and must have two airlocks.

B.29 Landfill (approved): An EPA approved site for the disposal of asbestos containing materials and other hazardous waste.

B.30 Mini-Containment: A small enclosure intended for a small scale abatement procedure from the environment through negative air pressure, physical barriers, and/or other means, mini containments will ordinarily not have an attached decontamination system.

B.31 Negative Pressure Enclosure (NPE): An enclosure of the regulated area with a minimum of -0.02 column inches of water pressure relative to the outside area using HEPA filtered negative air pressure equipment, four (4) air exchanges per hour. This shall be maintained within the NPE as evidenced by a manometer. Air movement away from employees performing work. The NPE also has a decontamination facility and a load-out area.

B.32 Negative Air Pressure Equipment: A portable local exhaust system equipped with HEPA filtration and capable of maintaining a low velocity air flow into a contaminated area from an adjacent uncontaminated area.

B.33 Objects:

Fixed: Items which cannot be removed from the work area.

Moveable: Items which can be removed from the work area.

B.34 Non-Friable Asbestos: Any material containing more than 1% asbestos by weight that hand pressure can not crumble, pulverize or reduce to powder when dry.

B.35 Presumed Asbestos Containing Material (PACM): Thermal systems and surfacing material found in buildings constructed no later than 1980 that the Government has not verified the absence of asbestos.

B.36 Plasticize: To cover with plastic sheeting.

B.37 PPE (Personal Protective Equipment): Disposable, impervious coveralls that are equipped with head and foot covers, gloves, and respirators.

B.38 Regulated Area: The area surrounding the work area demarcated by danger warning tape and signs. All personnel entering the regulated area must wear full PPE.

B.39 Shower Room: A room between the clean room and the equipment room in the worker decontamination enclosure with hot, cold, or warm-running water suitably arranged for complete showering during decontamination. Showers shall comply with 29 CFR 1910.141. All waste water shall be filtered to the one (1) micron level prior to being discharged into the sewer system.

B.40 Warning Labels and Signs: Signs and labels which conform to OSHA CFR 1910.1200 (f), and 29 CFR 1926.1101 (8).

B.41 Wet Cleaning: The process of eliminating asbestos contamination by using cloths, mops, or other cleaning tools which have been dampened with amended water.

B.42 Work Area: A regulated area where asbestos is abated. A contained work area is sealed, plasticized and equipped with a decontamination enclosure system. A non-contained work area is not plasticized but is equipped with a decontamination enclosure system and is demarcated by danger warning tape.

B.43 EM: Environmental Engineering.

B.44 BE: Bio-Environmental Engineering.

B.45 CE: Civil Engineering Directorate.

PART C

PREABATEMENT SUBMITTALS

General

At least five working days prior to commencement of work, the Contractor shall submit four (4) copies of all required submittals to the Contracting Officer for review and/or approval by EM/BE/CE. After completion of the submittal review additional information may be required for clarification of or in support of documents submitted. The required submittal areas include, but are not limited to the following:

C.1 Documentation of Training/Experience: All training must meet the criteria of 40 CFR 763 and 29 CFR 1926.1101. All abatement employees must be certified in accordance with 40 CFR 763 and 29 CFR 1926.1101, and certifications must be current throughout the contract period.

C.2 Employee Physicals: All physicals shall be in accordance with 29 CFR 1926.1101. Prior to start of work copies of the examinations for each employee utilized on this project must be submitted to the contracting officer. All additional employees or those with expiration dates of the physicals before or during the construction project must submit updated physicals or have an immediate medical examination. Submittals must be prior to start or continuing with work on this project. All submittal documents must be present and accessible for review at the project site.

C.3 Regulatory Agency Notification: Verify that NESHAPS report (attachment) was received by the following agency and a copy of this verified report must be submitted to EM prior to start of work:

NESHAPS Coordinator, Oklahoma City: Compliance Section, Air Quality Division, Oklahoma Department of Environmental Quality, 4545 N. Lincoln, Oklahoma City, Oklahoma 73104.

C.4 Security Documentation: Work area and equipment must be secured at all times to ensure no unauthorized persons enter contaminated or asbestos storage areas. Storage sites for all contractor equipment must be approved by the Contracting Officer prior to starting the asbestos abatement.

C.5 Communications: The Contractor shall submit to EM/BE/CE a phone and/or pager number where the General Contract Supervisor and the Competent Person of the Asbestos Contractor may be reached at all times.

C.6 Step-by-Step Abatement Procedures: This applies to friable and non-friable asbestos abatement procedures for each distinct location.

C.7 Glovebag procedures: The submittal for glovebag procedures shall include but not be limited to the following:

Sizes and type of bags to be used.

Glovebag installation insuring leak-proof system.

Method used for smoke testing bag.

Type and manufacture of negative air equipment.

Method to be used to maintain Negative Pressure within the negative air bag.

Method used to provide makeup air without creating a fiber release.

Negative air bag design to insure work accomplishment while maintaining continuous negative pressure.

Composition of amended water or wetting agent used.

Bridging encapsulant used.

Manufactures specifications for HEPA vacuum.

Personal protective equipment (respirators, suits, etc.).

Method of regulating the work area (signs, barrier tape, etc.).

Procedures for removal of ACM within the negative air bag.

Method of support for wet ACM within the negative air bag.

Disposal method (storage type, location, transporter, landfill name and location, etc.).

Decon unit location with respect to the regulated area, water filtration and disposal.

Additional data as required.

C.8 Negative Pressure enclosure construction procedures, including drawings. Drawings will show layout of the containment, how containment wall are to be attached, decontamination unit, load-out area, location for negative air machines, structural design of the containment and materials used in the construction of the containment.

C.9 Respirator Protection Program: IAW OSHA 29 CFR, Section 1910.134, 1926.1101 and ANSI Z88.2-80. Manufacturer's certification (including TC #) that all asbestos respiratory protective devices are NIOSH approved.

C.10 Manufacturer's Certifications:

Vacuums, air purifying equipment, negative air pressure equipment and other local exhaust ventilation equipment must conform to ANSI Z9.2-79.

C.11 Encapsulation Procedures: Type of encapsulate, method of application and location. Asbestos encapsulants being used must meet the following minimum criteria:

Penetrating Encapsulant:

Class A fire rating.
Oil/chemical resistant.
Non-toxic when applied.
Colored.

Bridging Encapsulant:

Class A fire rating.
Seamless.
Flexible.
Impact resistant.
Micro porous.
Algae/mold resistant.
Oil/chemical resistant.
Bird/rodent proof.
Non-toxic when applied.
Colored.
Waterproof.

C.12 Laboratory and Monitoring Requirements:

The Asbestos Contractor must use an independent laboratory for air monitoring and analysis support (see Part E, para 1.3 for required monitoring qualifications). Should the contractor change independent laboratories while the contract is in progress, the contractor shall resubmit the qualifications/certifications of the new laboratory for approval by the Contracting Officer and EM/BE/CE.

Laboratory must participate in the bulk asbestos analysis program with the National Voluntary Laboratory Accreditation Program (NVLAP) and shall have a good record in the program.

Laboratory must also participate in the Proficiency Analytical Testing (PAT) program with the National Institute of Occupational Safety and Health (NIOSH).

C.13 Asbestos Waste Transporter Requirements: Certification of Insurance showing the transporter has \$1,000,000.00 Environmental Impairment and Transportation coverage as required by State Of

Oklahoma. Certifications and Physicals for personnel transporting and unloading Asbestos material.

C.14 Landfill Qualifications: Written evidence that the landfill for disposal of the Asbestos is approved for the disposal of Asbestos by the USEPA and they will accept the material.

C.15 Material Safety Data Sheets (MSDS): A MSDS shall be submitted for all chemicals to be used on the project.

C.16 Work Schedule: Provide starting date, completion date, days to be worked (weekdays/weekends) and hours to be worked. If the abatement will be conducted at any time other than 0700 to 1600 hours, Monday through Friday, justification must be furnished and approved by Contracting Officer and EM Asbestos Coordinator. Any requests for variance from this specification shall be in writing and submitted to the Contracting Officer and EM/BE/CE at least ten (10) days in advance. Approval shall be at the discretion of the Contracting Officer and EM Asbestos Coordinator.

C.17 Emergency Plans and Fire Prevention Plans: As detailed in 29 CFR 1910.38.

C.18 Written Hazardous Communication Program: As detailed in 29. CFR 1926.59.

C.19 Rental Equipment: Provide a list of all rental equipment and written verification that the rental company has been informed that equipment is to be used for asbestos related activities.

PART D

ABATEMENT MATERIAL REQUIREMENTS

D.1 Deliver all materials in the original unopened packages, containers or bundles bearing the name of the manufacturer and the brand name. Materials must be approved by the Contracting Officer and Construction Inspector before use.

D.2 Store all materials subject to damage off the ground and under cover to prevent damage or contamination. Material to be used on the project site shall not be stored in the same location where the asbestos waste is located.

D.3 Damaged or deteriorating material shall not be used and shall be removed from the construction site immediately by the Contractor. The cost of the removal or disposal shall be the responsibility of the Contractor and at no cost to the Government.

PART E

**AIR SAMPLING AND MONITORING
ALL CLASSES OF REMOVAL**

Contractor Monitoring

General:

1. Air monitoring shall be required on all asbestos projects on Tinker AFB.

2. The Industrial Hygienists for the project shall be required to be at project site while the contractor is working.

E.1 Air sampling data must include: sample volume, sampling times, sampling locations (with appropriate dimensions and sketches), evidence of periodic inspection of sampling equipment, documentation of pre and post calibration of equipment, detailed description of work conditions, and description of worker protective devices.

E.2 Laboratory analysis data must include sample identification, total sample duration, sample flow rate, total air volume, total fibers counted, and total field concentration in fibers per cubic centimeter.

E.3 All air sampling and monitoring shall be conducted by an Industrial Hygienist or an individual properly trained in air sampling and monitoring as determined by the Contracting Officer and BE IAW OSHA 29 CFR, Section 1926.1101 appendix A-OSHA Reference Method.

E.4 Preabatement Background Sampling: Prior to construction of abatement enclosure system, BE, at their discretion, may collect one background sample for every 1500 sq. ft. of work area, and at least one sample per room or distinct restricted area. Should BE elect not to do background sampling then the clearance shall be less than or equal to 0.005 Fibers/CC.

E.5 Clearance Sampling: The Contractor is responsible for collecting clearance samples to include one clearance sample for every 1500 sq ft of work area, but as a minimum one sample per room or distinct restricted area. The aggressive sampling method shall be used. Clearance shall be 0.005 fibers/cc or preabatement sample concentration, whichever is more stringent.

E.6 Clearance Failure: Should clearance results fail the final clean-up requirements, the contractor shall pay all costs associated with all required recleaning, resampling and analysis until final clean-up requirements are met.

E.7 Blank Samples: Each set of samples shall include 10% field blanks or a minimum of 2 (two) field blanks as required by 29 CFR 1926.1101 Appendix A.

E.8 Each work shift a minimum of one (1) area sample shall be collected for each 1500 sq ft of work area or one sample for each restricted area.

E.9 If at any time the results of the air samples taken by the contractor or BE rise above the OSHA Permissible Exposure Limit (PEL), a confirmation asbestos fiber count will be required. If the confirmation count exceeds the PEL, the abatement will stop immediately and clean down procedures will be required. Cleaning will continue until air sample results are below the PEL.

E.10 Personal Sampling: The Asbestos Contractor's Industrial Hygienist (IH) shall conduct personal sampling at all times unless all employees are equipped with supplied air respirators in the pressure demand mode.

E.11 All personal samples must be taken at the breathing zones of persons who are performing asbestos abatement. The open face of the filter cassette must face downward during sampling.

E.12 Twenty-five percent of the asbestos abatement employees must be sampled per work shift in each work area. A minimum of two personal samples must be collected each shift from each work area.

E.13 Excursion Limit: The contractor shall ensure that no employee is exposed to airborne concentrations of Asbestos in excess of 1.0 f/cc of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in 29 CFR 1926.1101, Appendix A.

E.14 All personnel performing glovebag removal shall be monitored.

E.15 BE shall be supplied with a copy of the Contractor's air monitoring results prior to the beginning of the next work shift.

PART F

RESPIRATORY PROTECTION

F.1 The contractor shall implement a respiratory protection program in accordance 29 CFR 1926.1101 and 1910.134. All respirators shall be NIOSH approved.

Part G

**CLASS I ASBESTOS REMOVAL, NEGATIVE PRESSURE ENCLOSURE
(NPE) AREA PREPARATION**

G.1 Visually inspect area to be contained by the Negative Pressure Enclosure (NPE) and identify material to be removed. Locate any hazards that could harm contractor employees or the containment.

G.2 Post signs and tape as specified by OSHA 29 CFR 1926.1101 (k)(7) and 29 CFR 1926.1200 (f).

G.3 Have CE Monitor or Construction Management contact the Civil Engineering Electrical Shop for the best location for the contractors Licensed Electrician to hook-up the GFI and to lock-out and tag-out electrical circuits to work area without interfering with power to other Government operations.

G.4 Shut down and seal with 2 layers of 6 mil plastic sheeting all openings, including heating, cooling, and ventilating air systems, to prevent fiber dispersal to other areas.

G.5 Pre-clean movable objects from within work area (s) using HEPA vacuum and/or wet cleaning methods and remove from work area to a temporary location. Pre-clean fixed objects within the work area and plasticize with two (2) layers of 4 mil or greater plastic sheeting to provide an airtight, waterproof seal.

G.6 Pre-clean the proposed work area(s) using HEPA vacuum and wet wiping method. Special attention should be paid to places/material that could hold asbestos fibers. Activities such as dry sweeping, or vacuuming with non-HEPA filter vacuums is prohibited.

G.7 After the area is pre-cleaned cover the floor with two (2) layers of 6 mil plastic sheeting extending up the walls 12 inches. Cover walls with two (2) of 4 mil or greater plastic sheeting overlapping floor sheeting 12 inches. No butt joints. Should a roof (ceiling) be required for the containment it shall consist of 2 layers of 4 mil plastic extending down the walls 12 inches. Critical barriers of minimum 3/8 inch plywood are required to separate the work area from adjacent occupied areas or in areas of heavy traffic.

G.8 Assemble/construct decontamination unit consisting of a clean room, shower, and an equipment room (dirty room). Triple flaps will be used between each area of the decontamination unit. Shower facilities shall have liquid soap and shall comply with 29 CFR 1910.141(d)(3). Securely attach decontamination unit to the Negative Pressure Enclosure. On projects employing both Female and Male workers the contractor shall build separate decontamination units or stagger the work schedule to prevent embarrassment or harassment to either sex. Lockers shall be provided for street clothing. The contractor shall maintain a containment log at the entry of the decontamination unit consisting of date of entry, name, time in, and time out.

G.9 Install a sufficient number of HEPA filtered Air Machines to maintain a pressure drop of -0.02 inches of water within the enclosure and a manometer to verify the pressure drop. The manometer inlet tube

shall be located in the NPE in a area to get a representative sample of air flow. One HEPA filtered Air Machine must be installed as standby.

G.10 The contractor shall have a generator for backup power at all Negative Pressure Enclosure projects.

G.11 The Negative Pressure enclosure shall be inspected by CE prior to any removal of any asbestos containing material.

PART H

NEGATIVE PRESSURE ENCLOSURE, REMOVAL

General:

Run 30 minute excursion to ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 f/cc fibers over the 30 minute sampling period.

H.1 Visually inspect enclosures at the beginning of each work period. Repair damaged barriers and remedy defects immediately upon discovery.

H.2 Perform a daily wet cleaning of any area outside the work or restricted area which becomes contaminated with dust or debris as a consequence of work performed on that day.

H.3 Should areas outside the work area become contaminated with asbestos-containing dust or debris as a consequence of the asbestos abatement employees' work practices, the abatement contractor shall be responsible for cleaning these areas in accordance with the procedures outlined in this specification.

H.4 Start the HEPA filtered negative air pressure system and maintain a pressure of - 0.02 inches of water. Do not deactivate until CE personnel grant final clearance. One backup HEPA filtered negative air pressure system must be installed in the work area to provide backup support in case of equipment failure. Each negative pressure system must be equipped with an audible alarm and an electronic mechanism which shuts off the system in the event of filter breach or absence of filter.

H.5 High RPM power equipment, pressure washers or hydroblasters will not be used without permission from the Contracting Officer and CE personnel.

H.6 Spray asbestos material with amended water using an airless sprayer. Saturate the material to the substrate without causing excess dripping. Spray the asbestos material repeatedly during work process to maintain wet condition and to minimize asbestos fiber dispersal. Water must not leak through the enclosure and contaminate adjacent areas. The Asbestos Contractor shall inform BE immediately if a health hazard is created during the abatement. This includes, but is not limited to, such occurrences as breaching the containment area, air monitoring results indicating airborne asbestos concentrations at unacceptable levels, accidents, etc.

H.7 Remove all asbestos material identified in Section 1 (statement of work) of this Specification. In all cases, asbestos-containing materials shall be removed in manageable sections and handled carefully. Material shall not be allowed to dry out. Material drop shall not exceed 15 feet. For heights from 15 to 50 feet, provide inclined chutes or scaffolding to intercept drop. For heights exceeding 50 feet, provide enclosed airtight chutes.

H.8 During the abatement, immediate cleanup and bagging of asbestos materials is required; the material must remain saturated until the

waste container is sealed. Removed materials shall be double bagged in 6 mil plastic bags and sealed.

H.9 Brushes utilized for removing loose asbestos containing materials shall consist of nylon or fiber bristles only.

H.10 Label containers in accordance with OSHA 29 CFR, Section 1926.1101. Wet wipe external surfaces of containers thoroughly. Move containers to load-out area and repeat wet cleaning.

H.11 Should Asbestos material extend past the limits of the containment and the removal process has exposed unprotected Asbestos these areas shall be encapsulated with a heavy non-Asbestos encapsulant 1/4 inch thick overlapping existing and 4 inch sufficient to create a permanent seal.

H.12 After completion of gross removal, wet brush and sponge all surfaces to remove visible asbestos-containing material. Surfaces being cleaned shall be kept wet with amended water. All asbestos contaminated water will be filtered through a 1 micron filter system prior to discharge. Discharge will be disposed of into a sanitary line or an industrial line. Discharge shall not be disposed of onto the ground or into a storm drain.

H.13 Decontamination (cleanup): Cleanup materials (including mop heads), clothing and all other disposable material used in the work area shall be double bagged in 6 mil plastic bags and sealed for disposal as asbestos waste.

H.14 Use rubber dust pans and rubber squeegees only to move and pick up material on floor. Special care must be taken to minimize damage to floor sheeting.

H.15 Wet clean and HEPA vacuum all surfaces in the contained work area. After all surfaces are dry, the cleaning procedure shall be repeated. Dry dusting or sweeping will not be permitted.

H.16 After the second cleaning, a visual inspection will be conducted by CE personnel. If the area is clean, approval shall be given to apply a lock-down encapsulant to the innermost layer of plastic only. No encapsulant shall be applied to the substrate from which asbestos was removed. If the area does not pass the visual inspection, it shall be cleaned again using the procedures outlined above until it passes.

H.17 After the lock-down encapsulant is dry, as verified by CE personnel, the innermost layer of plastic sheeting shall be removed, double bagged, sealed and disposed of as asbestos waste.

H.18 After the innermost layer of plastic sheeting has been removed from the work area, the remaining layer of plastic sheeting shall be cleaned as outlined in paragraph H.12 of this Part.

H.19 After passing the second visual inspection, clearance samples will be collected. If clearance sample results are below 0.005 f/cc or preabatement sample concentration whichever is more stringent, CE approval will be given to apply lockdown encapsulant to the substrate and the remaining layer of plastic sheeting. If the clearance sample

results exceed 0.005 f/cc or the preabatement sample concentration, whichever is more stringent, the contractor will repeat cleaning until an acceptable fiber count is obtained.

H.20 After the lock-down encapsulant is dry, as verified by CE personnel, the final layer of floor poly will be removed while the final layer of wall poly is still in place and the Negative air machines are still running. After the floor area has been inspected by CE the negative air machine(s) may be turned off. The final layer of plastic shall be removed, double bagged, sealed, and disposed of as asbestos waste.

PART I

CLASS I ASBESTOS ABATEMENT, GLOVEBAG, NEGATIVE PRESURE GLOVEBAG REMOVAL PREABATEMENT PREPARATION

I.1 Regulate and demarcate work area using warning signs or labels in accordance with 29 CFR 1926.1101(k). Means to ensure employee comprehension may include the use of foreign languages, pictographs, and graphics.

I.2 Isolate HVAC system in regulated area sealing with a double layer of 6 mil plastic or greater.

I.3 Deactivate electrical circuits within regulated area.

I.4 Pre-clean area using HEPA vacuums and wet method, cover all non-movable objects with 2 layers of 6 mil plastic.

I.5 Place impermeable dropcloths on all surfaces beneath removal activity.

I.6 Construct and locate decontamination unit in central location to work area and within regulated area where feasible.

I.7 Attach HEPA vacuum to glovebag and maintain Negative pressure through out removal.

PART J

REMOVAL

J.1 Glovebag Removal Procedures.

J.2 Two workers per glovebag. All workers performing glovebag work shall wear full PPE during the installation of a glovebag, removal of ACM and removal of the glovebag. All workers performing glovebag removal shall be monitored.

J.3 Perform a daily wet cleaning of any area outside the work area or restricted area which becomes contaminated with dust or debris as a consequence or work performed on that day.

J.4 Should areas outside the work area become contaminated with asbestos containing dust or debris as a consequence of the asbestos abatement employees' work practices, those employees shall be responsible for cleaning these areas in accordance with the procedures indicated in this specification.

J.5 All removal tools and encapsulating supplies shall be placed in the glovebag tool pouch. Place glovebag around pipe, glue and tape edges to form an airtight seal.

J.6 Install the sprayer wand and HEPA vacuum hose into the glovebag. Tape both to the bag for an airtight seal.

J.7 Ensure that the glovebag is supported at the bottom to prevent separation caused by the weight of the wet debris (i.e. taping the bottom of the glovebag, platform to set the glovebag on, support bracket, etc.).

J.8 Saturate all insulation within the glovebag with amended water prior to removing any insulation. The insulation shall then be removed and placed into the glovebag. The material must remain wet at all times to minimize fiber release. When all insulation is removed, the pipe shall be thoroughly scrubbed clean.

J.9 After the pipe is clean, encapsulate all exposed edges of insulation and the pipe inside the glovebag. Spray inside of glovebag to wash all asbestos material to the bottom of the glovebag.

J.10 Invert one glove and place tools inside it. Twist inverted glove and tape securely at elbow portion of glove. Cut the inverted glove through tape to separate from glovebag. Seal the cut end with tape. Deflate the bag with the HEPA vacuum. Twist and tape glovebag near pipe. Carefully remove glovebag from pipe. Place glovebag in 6 mil plastic bag and tape to form an airtight seal. Tape the end of the vacuum hose.

PART K

CLASS II ASBESTOS WORK

K.1 Asbestos Gaskets, Preparation, Removal: If gasket is visibly deteriorated and unlikely to be removed intact, removal shall be within a glovebag. Gasket(s) shall be immediately placed in a disposal container. Any scraping to remove residue must be performed wet.

K.2 Transite Clapboard and Panels: Place 6 mil plastic sheeting below work site. Cutting, abrading, or breaking siding, shingles, or transite panels, shall be prohibited. Wet material with amended water and remove carefully to minimize breakage. Material shall be wrapped twice in 6 mil plastic or double-bagged in manageable bundles. Removal shall begin from the top and proceed down. Nails shall be cut with flat, sharp instrument. Cutting, abrading, or breaking of panels is prohibited. Dispose of the material as asbestos waste.

K.3 Vinyl Asbestos Floor Tile: Area Preparation: Regulate Area. A minimum of one layer of 6 mil poly shall be placed on walls prior to removal. During removal the floor tiles shall be kept wet with amended water and breakage to a minimum. The floor tile shall be removed with hand scrapers (equipment such as power scrapers, chippers, and buffers are prohibited). The floor tile shall be placed in 6 mil poly bags and put in a box. Seal the box and label it properly. Vacuums equipped with HEPA filters shall be used to clean floor of debris. The floor tile may be disposed of in a conventional landfill that accepts asbestos material.

K.4 Transite Pipe: Penetration of this material must be performed by certified asbestos abatement personnel. Exception: Some penetrations may be performed by non certified asbestos workers (e.g. when using tapping sleeves and valves). The following method is required for certified personnel: Regulate and demarcate work area using warning signs or labels in accordance with 29 CFR 1926.1101(k). Attach pipe cutter to pipe and apply amended water. Continue to apply amended water through the entire cutting process to minimize asbestos fiber release. HEPA vacuum and wet wipe the area after the work has been accomplished. Double-bag the material and dispose of it as asbestos waste.

K.5 Removal of Non-friable Asbestos Containing Materials: The following materials may be removed by certified asbestos employees using the procedures outlined below:

Roofing Materials (shingles, felt, tar, etc.): Roof level heating and ventilation air intake sources must be isolated or the ventilation system shall be shut down. Roofing material shall be removed in an intact state to the extent feasible. Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such methods are not feasible or will create safety hazard. Methods other than wet methods shall be approved by CE. Cutting machines shall be continuously misted. When removing build-up roofs with asbestos-containing roofing felts and an aggregate surface using power roof cutter, all dust resulting from the cutting operation shall be collected by a HEPA dust collector, or shall be HEPA vacuumed by vacuuming along cutting line. Asbestos-containing material

that has been removed from a roof shall not be dropped or thrown to the ground. Unless the material is hand carried or passed to the ground by hand, it shall be lowered to the ground via covered, dust-tight chute, crane or hoist. Intact ACM shall be lowered to the ground as soon as is practicable, but in any event no later than the end of the work shift, the lowered unwrapped material shall be transferred to a closed receptacle in such a manner so as to preclude the dispersion of dust. The roofing material may be disposed of in a conventional landfill provided the requirements of the landfill are met.

Floortile/Sheet Vinyl Procedures: Removal of vinyl asbestos floortile which has been classified as "PACM" and sheet flooring must be accomplished using the following procedures:

- (1) Removal shall be done only by licensed Asbestos Abatement Contractors, using only certified asbestos abatement workers.
- (2) Air monitoring shall be conducted.
- (3) There shall be a decontamination shower adjacent to the work area, or in a location convenient to the work area protected from the public.
- (4) The work area shall be properly secured and marked.
- (5) All air handling units affecting the work area shall be disabled.
- (6) All electrical power within arm's reach of the floor shall be locked out or securely covered to prevent water intrusion or contact by workers.
- (7) Critical barriers shall be erected.
- (8) There shall be a minimum of one layer of 4 mil covering the walls.
- (9) There shall be sufficient negative air machines in the work area to provide 4 air changes per hour. The negative air machines need not be externally vented.
- (10) Asbestos containing adhesive may be removed by manually scraping.
- (11) Any water escaping from the work area shall be considered to have created a breach of containment and shall be handled accordingly.

K.6 Linoleum/Resilient Sheeting: Remove by cutting with wetting of snip point and wetting during delamination. Rip-up of resilient sheet flooring is prohibited. The linoleum will not be removed by using equipment such as powered scrapers, chippers and buffers. The linoleum shall be placed in a 6 mil poly bag and put the bag into a box. Seal the box and label it properly. The linoleum may be disposed of in a conventional landfill that accepts asbestos material provided the requirements of the landfill are met.

K.7 Asbestos Containing Ceiling Tile Abatement Procedures shall be in accordance with Okla Title 40 451-456. Removal of friable asbestos containing ceiling tiles must be done using the following procedures:

- (1) Removal shall be done only by licensed Asbestos Abatement Contractors, using only Asbestos Abatement Workers.
- (2) The ceiling tile removal may only be done when the area is not occupied.
- (3) All moveable objects must be removed from the room.
- (4) Decontamination facilities must be established, but need not be contiguous with the tile removal area provided.
- (5) Critical barriers must be erected.
- (6) Negative air machines in the removal area must be installed, vented internally, and provide a minimum of one air change each 30 minutes.
- (7) The floor must be covered by at least one layer of 6-mil poly.
- (8) Workers shall work in teams, with one worker removing and bagging tiles and one worker holding a HEPA vacuum near the grid.
- (9) Tiles must be doubled bagged in 6-mil asbestos marked bags and sealed with duct tape.
- (10) The tiles must be disposed of in an approved asbestos landfill.
- (11) The ceiling grid must be HEPA vacuumed and wet-wiped.
- (12) Air monitoring must be conducted.

PART L

DISPOSAL

L.1 Asbestos Contractor shall notify EM personnel in advance of the date and time that asbestos waste will be transported.

L.2 To prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos waste periodically shall be removed and transported to the disposal site.

L.3 A completed generator label shall be placed on each bag, drum and wrapped component before transporting to the landfill site. Transport vehicle shall display class 9 placards.

L.4 All regulated asbestos waste shall be disposed of at an authorized site in accordance with regulatory requirements of EPA and applicable state and local guidelines and regulations.

L.5 Loading asbestos waste shall not begin until EM personnel are present at the loading site. Wet wipe all containers in work area prior to transfer to load-out. Wet wipe containers again in load-out area prior to transfer to disposal vehicle.

L.6 Personnel loading and unloading asbestos-containing waste shall wear full PPE. Workers removing asbestos waste from the abatement enclosure shall enter the load-out from outside. No one shall use the load-out as a means to leave or enter the work area.

L.7 Drums/bags of asbestos waste and wrapped asbestos components that have been removed from the work area shall be transported directly to an EPA approved asbestos disposal site. Temporary storage of asbestos waste at an intermediate location is not permitted except under special authorization from EM.

L.8 Asbestos transported in an open truck or trailer must be in 6 mil bags within sealed drums. Drums must be secured to prevent movement and shall not be loaded higher than the sidewalls of the vehicle.

L.9 The cargo area of the truck shall be free of debris and lined and sealed with 6 mil plastic to prevent vehicle contamination.

L.10 Large structural asbestos containing components shall be loaded and secured prior to loading bags. Do not throw items into truck cargo area.

L.11 Any asbestos waste observed on containers or surfaces outside the work area shall be immediately cleaned using HEPA filtered vacuuming equipment and/or wet cleaning methods.

L.12 Non-friable asbestos waste may be handled and transported by non-certified asbestos employees. Disposal shall be at an approved asbestos landfill provided the requirements of the landfill are met. All non-friable materials must be bagged/wrapped and boxed prior to transport.

L.13 Transport Vehicles and Trailers shall have current vehicle licensing as required by State Law and display a DOT Class 9 Placard.

L.14 Transport Vehicles or trailers shall be professionally constructed. Asbestos shall not be transported in make-shift vehicles.

PART M

POSTABATEMENT SUBMITTALS

M.1 Within 10 working days after completion of work and prior to release from contract obligations with the USAF, the Asbestos Contractor shall provide the Contracting Officer:

(1) A signed receipt from the waste disposal site operator stating date, time, and amount (cubic yards) of asbestos waste received.

(2) A signed copy of all air sample results, from samples collected during the contract. (see Part E, Air Sampling and Monitoring).

PART N

HAZARDOUS PROPERTY DISCLAIMER

The Government cautions that asbestos containing materials, substances, or component parts thereof, which are being removed under this contract exhibit hazardous or toxic properties. The Government assumes no liability for any damage to the property of the Asbestos Contractor; any person or public property, or for the personal injuries, illness, disabilities, or death to the Asbestos Contractor or his employees, any other person subject to the Asbestos Contractor's control or any other person including members of the general public, arising from, or incident to, the purchase, use, processing, disposition, or any subsequent operation performed upon, exposure to or contact with any component, part, constituent or ingredient of this item, or substance or material whether intentional or accidental. The Asbestos Contractor agrees to hold harmless and indemnify the Government for any and all costs and expenses incurred incident to any claim, suit, demand, judgment, action, debt, liability costs and attorney's fees or any other request for moneys or any other type of relief arising from or incident to the purchase, use, processing, disposition, subsequent operation performed upon, exposure to, or contact with any component, part, constituent, or ingredient of this item, material, or substance, whether intentional or accidental.

